

APPENDIX L – Model Keel and Rudder Inspection Procedure

The model form is not the only means of meeting the needs of OSR 3.02.3 a). As evidence of Periodic Structural Inspection, Organising Authorities may develop on-line forms.

Evidence of non-destructive testing and its findings meeting the needs of OSR 3.02.3(b) shall be provided in a document signed by the person representing the organisation that performed the tests.

Category 0,1,2 Structural Inspection of a boat shall be completed by a qualified person both internally (may be in the water) and externally (out of the water). The purpose of this regular inspection is to identify and report to the Owner the condition of the rudder, keel and keel structure observed during this inspection. For category 3 inspection, the Owner/representative shall inspect the integrity of the keel and rudder. It is the responsibility of the Owner to undertake any repairs.

Category 0,1,2 from 1 January 2030, welded metal keels shall undergo non-destructive testing to examine welds for cracks or other defects. Techniques such as dye penetrant, ultrasonics, X-rays and other methods may be used. These tests shall be conducted by an independent, qualified person.

Consult the Owners' Manual for the specific boat, steering system and type of keel. Inspect in detail any high-load areas: keel attachment, keel floor, steering systems, rudder(s). Pay special attention to prior repairs, especially following groundings.

Internal Inspection: Inspect backing plates, bolting arrangements, sump area and keel floors for any signs of weakening, such as cracking or de-laminated tabbing etc. Keels may require tightening of bolts in accordance with the torque specified in the Owner's Manual. In the absence of an Owner's Manual, refer to ISO 12215-9 clause B.5. Inspect keel fasteners for corrosion. Inspect bolt holes for deformation. Conduct a visual inspection to identify potential de-bonding of the supporting structure.

External Inspection: Inspect for any signs of stress cracks (not paint or gelcoat cracks) around the keel attachments to hull, or movement or opening around the keel/hull interface which allows water ingress and consequent keel bolt crevice corrosion. If in doubt, remove bottom paint/gelcoat to identify depth of crack. Undertake a keel tip deflection test to identify any excessive movement. Visually inspect high stress regions, particularly around the forward and aft hull attachment areas of the keel, for signs of paint or gelcoat cracking or large, deep blisters, which can indicate separation and structural weakness.

Rudder/Steering system: Check bearing area for any damage/stress cracks; check rudder shaft and blade integrity, especially at any shaft joins and at upper connections to hull/deck. Undertake a tip deflection test to identify any excessive movement. If applicable, check rudder straps and gudgeons for corrosion or cracking.

Lifting, swing and canting keels: In addition to above, check there are no significant stress cracks in structure around pins supporting the keel. Check for extensive corrosion on pins, cylinders and supporting metal structure.

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Model Keel and Rudder Inspection Form

Boat Name:		Sail Number:	
Owner Name:		Designer:	
Address:			
Owner email:		Builder:	
Series Date:		Hull Identification Number:	
World Sailing Plan Review Certificate Number:			
The following checks may be completed with boat in the water:			
Item:	Action:	Inspector's Notes:	
Keel Bolts	Inspect for excessive corrosion. Torque to manufacturer's specs (In the absence of manufacturer's specs, refer to <u>ISO 12215-9</u> clause B.5).		
Internal Hull Structure	Inspect for signs of structural failure and/or laminate separation especially in area around keel structure, keel floor and other stress points.		
The following checks to be conducted externally with boat out of the water:			
External Hull Condition	Inspect for hull stress cracks around forward and aft edge attachment point to structure, hull appendages and keel sumps. Inspect keel/hull interface for signs of damage by tip deflection test.		
Rudder	Inspect for cracking of the rudder bearing/hull assembly. Inspect rudder for integrity by tip deflection test.		
Declaration of Completed Inspection:			
Location:		Date:	
This visual inspection has been conducted to observe and report on visually noticeable indications that may compromise the structural integrity of the vessel's keel and rudder. It does not ensure that the vessel is seaworthy or that the owner has repaired the identified problems.			
Print name:		Signature:	
Address:			